Listing of the Claims:

Claim 1 (previously amended): An ion plating device comprising:

a vacuum chamber adapted to be evacuated;

a substrate holder placed in the vacuum chamber for holding a substrate; and

a power supply unit including an RF power unit connected to the substrate holder for supplying power to an inside of the vacuum chamber through the substrate holder for changing a film forming material into a plasma and for depositing the film forming material from the plasma on the substrate and a bias power supply unit connected to the substrate holder in parallel to the RF power unit for supplying a bias voltage to the inside of the vacuum chamber through the substrate holder simultaneously with the power supplied by the RF power unit, wherein

the bias power supply unit outputs the bias voltage composed of a negative bias component having a predetermined negative voltage value for a predetermined output time and a pulse bias component corresponding to a pulse output having a positive voltage value for a predetermined time with a cycle set in a range of 1 kHz to 1 GHz.

Claim 2 (previously amended): The ion plating device according to Claim 1, wherein a ratio of the predetermined time of the pulse bias to the cycle of the bias voltage is 40% or less.

Claim 3 (previously amended): The ion plating device according to Claim 1, wherein the pulse output of the pulse bias is a square wave pulse.

Claim 4 (previously amended): The ion plating device according to Claim 2, wherein the pulse output of the pulse bias is a square wave pulse.

Claim 5 (original): The ion plating device according to any of Claims 1 to 4, wherein

the bias power supply unit comprises a waveform generator for generating a basic waveform of the bias voltage and a bias power supply for generating the bias voltage having a constant value based on the basic waveform output from the waveform generator.

Claim 6 (withdrawn)

Claim 7 (withdrawn)

Claim 8 (previously amended): The ion plating device according to any of Claims 1 to 4, wherein

the bias power supply unit comprises a direct current power supply for forming the negative bias and an impulse train power supply for forming the pulse bias, further comprising:

a low pass filter provided between the direct current power supply and the substrate holder, for passing an output of the direct current power supply therethrough toward the substrate holder and preventing an output of the impulse train power supply from being input to the direct current power supply; and

a band pass filter provided between the impulse train power supply and the substrate holder, for passing an output of the impulse train power supply therethrough toward the substrate holder and preventing an output of the direct current power supply from being input to the impulse train power supply.

Claims 9-11 (withdrawn)

Claim 12 (original): The ion plating device according to any of Claims 1 to 4, wherein

the bias power supply unit comprises a waveform generator for generating a basic waveform of the bias voltage and a bias power supply for generating the bias voltage having a constant value based on the basic waveform output from the waveform generator, further comprising:

a radio frequency power supply unit for outputting radio frequency power;

a high pass filter provided between the radio frequency power supply unit and the substrate holder for passing an output of the radio frequency power supply unit therethrough toward the substrate holder and preventing an output of the bias power supply unit from being input to the radio frequency power supply unit; and

a first low pass filter provided between the bias power supply unit and the substrate holder for passing an output of the bias power supply unit therethrough

toward the substrate holder and preventing an output of the radio frequency power supply unit from being input to the bias power supply unit, wherein

a preliminary plasma forming process is adapted to be carried out in such a manner that the vacuum chamber is evacuated to a state of 6.7×10^{-3} Pa to 6.7×10^{-1} Pa, and the bias voltage in which an absolute value of the pulse bias component is smaller than an absolute value of the negative bias component is output with a cycle set in a range of 1 kHz to 1 GHz to generate a preliminary plasma and then,

a film forming process is adapted to be carried out in such a manner that the vacuum chamber is evacuated to a state in which the material of the film can be vaporized to generate a plasma for film formation and the radio frequency power as well as the bias voltage is output to generate the plasma for film formation, thereby forming the film on the substrate.

Claims 13-16 (withdrawn)

Claim 17 (original): The ion plating device according to any of Claims 1 to 4, wherein a preliminary plasma forming process is adapted to be carried out in such a manner that the vacuum chamber is evacuated to a state of 6.7×10^{-3} Pa to 6.7×10^{-1} Pa and the bias voltage in which an absolute value of the pulse bias component is smaller than an absolute value of the negative bias component is output with a cycle set in a range of 1 kHz to 1 GHz to generate a preliminary plasma and then,

a film forming process is adapted to be carried out in such a manner that the vacuum chamber is evacuated to a state in which the material of the film can be vaporized to generate a plasma for film formation and the bias voltage is output with a cycle set in a range of 1 MHz to 1 GHz to generate the plasma for film formation, thereby forming the film on the substrate.

Claims 18-20 (withdrawn)

Claim 21 (previously added): The ion plating device according to Claim 1, wherein the bias power supply unit outputs the pulse bias voltage with a cycle set in a range of 100 kHz to 500 kHz.

Claim 22 (new): An ion plating device comprising:

a vacuum chamber adapted to be evacuated;

a substrate holder placed in the vacuum chamber for holding a substrate; and

a power supply unit including an RF power unit connected to the substrate holder for supplying power to an inside of the vacuum chamber through the substrate holder for changing a film forming material into a plasma and for depositing the film forming material from the plasma on the substrate and a bias power supply unit connected to the substrate holder in parallel to the RF power unit for supplying a bias voltage to the inside of the vacuum chamber through the substrate holder simultaneously with the power supplied by the RF power unit, wherein

the bias power supply unit outputs the bias voltage composed of a negative bias component having a predetermined negative voltage value for a predetermined output time and a pulse bias component corresponding to a pulse output having a positive voltage value for a predetermined time with a cycle set in a range of 1 kHz to 1 GHz, and wherein a ratio of the predetermined time of the pulse bias to the cycle of the bias voltage is 40% or less.